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EXAMINER

Q1, Z

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 11/24/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No.  
**09/382,394**

Applicant(s)  
**MASAYUKI**

Examiner  
**MIKE QI**

Group Art Unit  
**2871**



- ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

- ☒ Claim(s) 1-6 is/are pending in the application.
- Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 1-6 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☒ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☒ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been
- ☒ received.
- ☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_.

- ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- ☒ Notice of References Cited, PTO-892
- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 5
- ☐ Interview Summary, PTO-413
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities: there are some words, such as "W", "Ti", "Al" in page 2, line 3,10; page 3, line 13, 17; page 4, line 6 and page 7, line 5,10,22 should indicate the full name respectively, e.g., tungsten, thallium, aluminum, that is more clear statement.

Appropriate correction is required.

### ***Claim Rejections - 35 U.S.C. § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,777,701 (Zhang) in view of US 5,953,088(Hanazawa et al).

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Zhang discloses in column 3, lines 53-column 4, line 67 the structure of a liquid crystal display device. In Figs. 1 and 2 show the substrates (first substrate and second substrate) opposed each other and a liquid crystal is interposed between the two substrates through a gap about several micrometers (the predetermined interval), that is a conventional. Zhang discloses the thin-film transistors are arranged on the side of a substrate, that is the same arrangement as applied the pixel transistor arranged on the first substrate.

Zhang also discloses the titanium electrode 116 (a light shielding film) shields the gate line 110 and source line 113 from light, it can prevent charge generation and accumulation there due to illumination with strong light and also serves as a shield against external electromagnetic waves, i.e., to prevent receiving undesired signals so as to shield the incident light or scattered light. And the light shielding film 116 is formed also covering the thin-film transistor 103. By overlapping the black matrix and the periphery of the pixel electrode through the insulating film, the coextending portion serves as the auxiliary capacitor. This structure prevents reduction in pixel aperture ratio.

Zhang discloses in column 1, lines 49-53 a light-shielding film is so formed to cover the edges of the pixel electrodes. To achieve the light shielding effect and improve the image display contrast and illumination uniformity you must protect the pixel transistor as the switching control element.

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The limitations not disclosed by Zhang are to shield the pixel transistor is disposed over or under an additional capacitance line or between a gate line and the additional capacitance line and at a position avoiding the gate line. However, Hanazawa et al discloses in column 6, lines 53-60 a shield electrode SH may be formed to extend on both sides of the storage capacitance line 52 along the signal line X (over an additional capacitance line), so as to obtain the effect to suppress the parasitic capacitance influence to a minimum. Therefore, that would have been obvious to the ordinary skilled in the art at the time the invention was made to shield the pixel transistor is disposed over or under an additional capacitance line or between a gate line and the additional capacitance line and at a position avoiding the gate line for obtaining the effect to suppress the parasitic capacitance influence to a minimum.

***Claim Rejections - 35 U.S.C. § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 4-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In regard to claim 4, the wording "...so that an increase in parasitic capacitance between the light shielding film is suppressed,..." is indefinite and unclear. It is unclear how the

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increased parasitic capacitance is suppressed between the light shielding film itself. In accordance with the specification, the increased parasitic capacitance is suppressed between the light shielding film and the gate line. For examination purposes, the Examiner interpreted as in accordance with the specification.

In regard to claim 5, “said light emitting film” lacks antecedent basis. Also, the claimed language seems to be inconsistent with the specification and the drawings. In accordance with the specification and the drawings, the first silicon layer is located beneath the capacitance line and spaced from the light shielding film by the gate insulating film (*not a first insulating layer*) and substantially in register with the light shielding film (*not a light emitting film*) at a location not beneath the gate line. For examination purposes, the Examiner interpreted as in accordance with the specification and the drawings.

***Allowable Subject Matter***

6. Claim 4 -6 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2<sup>nd</sup> paragraph, set forth in this Office action.

The prior art of record neither teaches nor discloses the liquid crystal display device specifically comprising :

the light shielding film formed substantially beneath a silicon layer and extending so as to terminate a location which is not beneath the gate line and disposed under the capacitance line, the light shielding film being connected to a fixed potential so that an increase in parasitic

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capacitance between the light shielding film and the gate line is suppressed, a load amount on the gate line is suppressed and a delay of gate potential is small;

the first silicon layer is located beneath the capacitance line and spaced from the light shielding film by a gate insulating film and substantially in register with the light shielding film at a location not beneath the gate line;

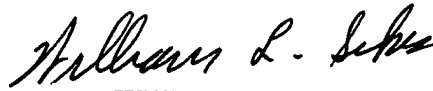
the light shielding film is made from a metal and is connected to a metal layer having a fixed potential.

### *Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (703)308-6213 .

Mike Qi  
November 17, 1999

  
William L. Sikes  
Supervisory Primary Examiner  
Technology Center 2800